formulary non-adherence and 8 (38.1%) for early refill detection. Only six (28.6%) hospitals with PIS have the capability to generate four types of reports(ranking physicians by utilization, drug they prescribe, most utilized drug by number of patients, most utilized drug by diagnosis). **CONCLUSIONS:** Adopting PIS in Saudi hospitals is improving comparing to 2003 study, however, the integration of the EMR and CPOE still not to the expected level. To ptimize the institutional Pharmacy Benefit Management Program (PBMP), the detection and reporting capabilities of the PIS should be improved to facilitate prescribing decision making process, and to improve concurrent, prospective, and retrospective drug utilization review process.

PHP84

A COMPARISON OF KEY COMPONENTS OF THE HTA CORE MODEL AND THE AMCP FORMAT

Oehrlein EM, Hanna ML, Perfetto EM

University of Maryland, School of Pharmacy, Baltimore, MD, USA

OBJECTIVES: Both the HTA Core Model® (CM) for pharmaceutical evaluations and the Academy of Managed Care Pharmacy (AMCP) Format (Format) for formulary submissions were developed to streamline health technology assessment (HTA). The CM is specific to European HTAs, while the Format is specific to US managed care. This study aims to compare these approaches to identify areas of overlap, and differing elements that may reflect regional values and preferences. **METHODS:** The CM for pharmaceuticals (Version 2.1) and the Format (Version 3.1) were examined and analyzed by two reviewers. A table of 17 characteristics was created to evaluate which elements align or do not align. **RESULTS:** Of the 17 characteristics, 5 were found to be aligned, 5 were somewhat aligned, and 7 were not at all aligned. The CM provides more detailed guidance (388 pages of guidance, 447 pages total) on desired data sources and rationale, whereas the Format provides only a short overview of requirements and methodology (17 pages of guidance, 95 total). There is general alignment in terms of requiring information on burden of disease, existing treatment options, clinical effectiveness, and economic analyses, however within these overarching themes, certain variations exist. For example, the CM suggests cost-effectiveness, -utility or -benefit analyses, while the Format suggests only cost-effectiveness analyses. In addition, the CM contains additional sections, including ethical analysis, organizational aspects, social aspects, and legal aspects. Alternatively, the Format contains an addendum specific to use of comparative effectiveness research (CER), as defined in the US, stipulating that CER studies reflect patient preferences. It also contains a separate addendum specific to specialty pharmaceuticals. **CONCLUSIONS:** While the CM and Format require similar information to be submitted, certain regional values and health system differences are reflected in the varying approaches. Trans-Atlantic collaboration could be helpful in standardizing characteristics across these frameworks.

HEALTH CARE USE & POLICY STUDIES – Health Care Costs & Management

PHP85

ROLE OF BUDGET IMPACT ANALYSIS IN MARKET ACCESS OF BIOSIMILARS

Singh A, Jha RK, Mazumder D, Kapoor A

Optum Global Solutions, Noida, India

OBJECTIVES: Biologics have made substantial contribution in a number of diseases, but the high cost of therapy in the arena of cost containment impacting their accessibility and sustainability. Biosimilars are a viable alternative after patent expiry of many first generation originator biologics. Expecting a 20-30% difference in price from a branded product, budget impact is being considered an important area driving the market access of these products. Hence, we reviewed the published budget impact analysis (BIA) of the biosimilars conducted in different countries'. **METHODS:** We searched the PubMed, ISPOR, google scholar database etc. for English language articles with search terms "budget impact" OR "budget analysis" AND "biosimilar" OR "subsequent entry biological" OR "follow-on biological". The methodology of analysis and the major outcomes such as cost saving and additional patients treated were reviewed from the included studies. **RESULTS:** Articles reporting the BIA of biosimilars were identified. The studies with BIA were segregated based on the countries. The source of funding, model used, and description provided around the model for the BIA was identified. The budget savings projected over 2015-2019 ranged from 95.8mn to 433mn at 10% and 30% discount, respectively, for UK, Italy, France, and Germany. The net benefit of 29.8mn over 3 years period resulted in treatment of 1025 to 1615 more patients yearly. ISPOR BIA good practice II task force guidance was used to assess the analytical framework, data sources, and reporting format. **CONCLUSIONS:** The use of biosimilars seems to economically attractive, probably due to cost-savings and additional patients' treatment. However, there is low availability of BIAs for biosimilars, where they were introduced long back and/or no availability in countries where just entered the market. This potential raises the need for highly robust BIAs, thus, aid in decision-making for judicious allocation of the budget.

PHP86

TREATMENT COSTS IN PRIMARY AND SECONDARY HEALTHCARE IN FINLAND

Purmonen T[1], Tyrväinen V[2], Purmonen T[2], Rytkönen A[3], Kataja V[3]

[1]*Oy Medfiles Ltd, Kuopio, Finland,* [2]*Proper Oy, Joensuu, Finland,* [3]*Central Finland Health Care District, Jyväskylä, Finland*

OBJECTIVES: Healthcare contributes a major proportion of public expenditures. The Finnish publicly funded healthcare system consists of primary and secondary healthcare services. Currently, specialized healthcare is responsible of 45-55% of total healthcare expenditures. The aim was to clarify the current and projected future costs for both primary and secondary healthcare. **METHODS:** This register-based study was performed in a selected area covering approximately 200,000 inhabitants. The data set consists of 1,55 million healthcare contacts to primary or secondary healthcare during 2013. All events were matched to individuals with the unique national identification code, in order to obtain the per-patient costs in different ages. In the future cost projections, it was assumed the per-patient-costs remain at year 2013 level, and these were then combined with official population forecasts. **RESULTS:** Altogether 160,952 individuals (81% of all inhabitants) had at least one healthcare contact during the follow up. Primary and secondary healthcare services had been used by 155,631 and 59,589 patients, respectively. The average annual cost per patient was 1,853€. The average cost in primary and secondary healthcare was 808€ and 2,895€, respectively. Variation was wide across the different ages (Primary healthcare, range: 346€–5,645€; Secondary healthcare, range: 1,282€–4,474€). Due to aging of the population only, according to the future projections, in the year 2025, the total primary healthcare costs are 21% and secondary healthcare costs 14% higher than in 2013. **CONCLUSIONS:** With respect to costs, aging of the population affects primary healthcare more than specialized healthcare. Thus, the healthcare utilization should be regarded as one entity taking into account both primary and secondary healthcare services. If the overall treatment process, from primary care to secondary care and sometimes back to primary care, is not taken in to account, this will lead to suboptimal decision making.

PHP87

HEALTH SERVICES UTILIZATION BY DENGUE PATIENT IN BRAZIL, 2012 – 2013: A MULTICENTER STUDY

Zara AL[1], Martelli CM[2], Siqueira-Jr JB[1], Parente MP[3], Braga C[2], Oliveira CS[4], Pimenta-Jr FG[5], Cortes F[6], Bahia LR[7], Mendes MC[5], Quarti M[7], Siqueira-Filha NT[8], Souza WV[2], Toscano CM[1]

[1]*Universidade Federal de Goias, Goiânia, Brazil,* [2]*Fundacao Oswaldo Cruz CPqAM Pernambuco, Recife, Brazil,* [3]*Universidade Estadual do Piaui, Teresina, Brazil,* [4]*Universidade do Estado do Para, Belem, Brazil,* [5]*Secretaria Municipal Saude Belo Horizonte, Belo Horizonte, Brazil,* [6]*Instituto de Avaliação de Tecnologias em Saúde (IATS), Recife, Brazil,* [7]*Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil,* [8]*London School of Hygiene and Tropical Medicine, London, UK*

OBJECTIVES: To describe health service utilization (HSU) patterns of dengue cases by age, severity of illness, and healthcare sector, in Brazil during an epidemic dengue transmission period. **METHODS:** A multicenter cohort study was conducted in 2012-2013 at four Brazilian endemic regions. Patients were ascertained in units and hospitals from both public and private sectors. Data collection was performed by interviewing 15-20 days after the onset of symptoms and review of medical records of hospitalized patients. HSU specific information included: access and type of healthcare service, type and quantity of diagnostic, laboratory and imaging tests, medical procedures, and medications. **RESULTS:** A total of 2,035 (91.5%) dengue cases were recruited to our study: 1,657 (81.4%) were outpatients and 378 (18.6%) inpatients; 1,361 (66.9%) were assisted at public and 674 (33.1%) at private sector; 398 (19.6%) children and 1,635 (80.4%) adults. Public sector has higher medical visits average which ranged from 1.2 in Teresina (Northeast) to 4.2 in Goiânia (Midwest) for outpatients, and from 3.2 in Goiânia to 5.0 in Teresina for inpatients. Hospital length of stay varied from 3-4 days. Full blood count was carried out in 80% of cases; in 75% of adults, in both outpatients and inpatients. X-ray tests were performed in 8.2% of outpatients and 26.2% of inpatients, with most adults (75.0%). Frequently outpatients and inpatients reported medication use, 71.0% and 65.9% respectively, specially at public sector (75.0%). **CONCLUSIONS:** Our results show that HSU patterns of dengue cases have extensive variations regarding healthcare sector, severity of illness, and different regions of Brazil. The HSU could be affected by dengue clinical guidelines utilized in healthcare service.

PHP88

DOES THE LEGAL REGULATION OF PROMOTING PHARMACEUTICAL PARALLEL IMPORTS HELPS TO CREATE SAVINGS FOR THE STATUTORY HEALTH INSURANCE (GKV) IN GERMANY?

Leisten M, Brakmann D, Münchberg F, Wiberny S

Janssen-Cilag GmbH, Neuss, Germany

OBJECTIVES: In Germany parallel imports does not only exist due to economic reasons like arbitrage principle, but due to special legislative support. According to law, pharmacies have to fulfil a predetermined import quota to achieve a certain efficiency reserve which should help generating higher savings for the statutory health insurance. Prices of imports are only cost efficient if they are fulfilling a minimum price difference which is 15% or 15 Euro below the prices of originals. The objective is to determine whether imports are price efficient and if they obtain the legally implemented savings. **METHODS:** This analysis evaluates data from IMS-Database which covers all redeemed GKV receipts. Imports were identified by pharmacy number (PZN). Afterwards they were ordered by Anatomical Therapeutic Chemical (ATC)-Coding and listed separately for GKV-sales and market share. Market share was identified by units sold, sales on basis of manufactures price. Prices were taken from a public price list (Lauer-Taxe). For overall savings publicized data were used (Arzneimittel-Atlas). Evaluation period was 2013. **RESULTS:** Imports are focussing on special therapeutics, mainly covering Neurologics (ATC1 "N") and Immunsuppressiva (ATC1 "L"). Both indications received a market share of 38.7% with sales of 2.5 bio. euro. By looking at the top 5 imports with highest sales cost efficient prices according to legal rule are only apparent in 3 of 5 cases (absolute rating) and 1 of 5 cases (relative rating). In general, prices of imports are oriented to prices of originals and sometimes even excess them. Annual savings are 63.5 mio. euro. **CONCLUSIONS:** Imports are focussing on special therapeutic areas which mainly lead to high margins for importers. Prices are not efficiently according to legal rule so that the expected savings does not result. Therefore the existing regulation of import quota should be disestablished. Imports should regulate themselves by the competition of the market but without additional support by legislation.

PHP89

GENERAL ASSESSMENT OF UNLICENSED ANTINEOPLASTIC AND IMMUNOMODULATING MEDICINE USAGE IN TURKEY

Tuna E[1], Kockaya G[2], Yenilmez FB[1], Dogan E[3], Vural IM[3], Akbulat A[3], Artiran G[3], Tatar M[1], Unal O[3]

[1]*Hacettepe University, Ankara, Turkey,* [2]*Health Economics and Policy Association, Ankara, Turkey,* [3]*Turkish Medicines and Medical Devices Agency, Ankara, Turkey*

OBJECTIVES: The Turkish Medicines and Medical Devices Agency (TMMDA) gives permission of unlicensed medicine use by patient basis. Authorized wholesalers including Turkish Pharmacists' Association (TPA) can import the drugs based on the TMMDA's permission. These medicines are reimbursed by the Social Security Institution (SSI), the main reimbursement agency in Turkey Until 2014 when wholesalers were also authorized, pharmaceuticals under this status could only be imported by the Turkish Pharmacists' Association (TPA The aim of this study is to understand the trends in L group (Antineoplastic and immunomodulating agents) of ATC classification system unlicensed medicine consumption between 2011 and 2013 when the TPA was the only authorized supplier. **METHODS:** Consumption data of L group in the top 100 imported unlicensed medicines with the highest sales share in total expenses of imported off-label use was taken from the TMMDA computer database. Descriptive analysis was conducted. **RESULTS:** The analysis showed that the numbers of active ingredients of L group in the top 100 rose from 37 to 55, between 2011 and 2013. The average cost per box of unlicensed medicines in the L group increased from 4.973 TL to 7.436 TL in the same period. The total consumption of the unlicensed medicines in L group increased from 107 billion TL to 482 billion TL. **CONCLUSIONS:** The cost of imported unlicensed medicines used increased every year in Turkey. Some cost-containment measures (especially for antineoplastic medicines) should be taken to reduce the increasing cost without risking the patients' access to these innovative medicines.

PHP90

COSTS OF SEPTIC SHOCK IN ENGLAND, WALES AND NORTHERN IRELAND IN 2012

Andersson FL, Palencia R, Kjølbye AL
Ferring Pharmaceuticals A/S, Copenhagen, Denmark

OBJECTIVES: The objective of this study was to analyze the costs of septic shock in 2012 for England, Wales and Northern Ireland. **METHODS:** We analyzed length of stay and organ support of 20,549 adult septic shock patients. Septic shock was defined as severe sepsis including the presence of cardiovascular organ dysfunction. Data derived from the Case Mix Programme Database. This is the national, comparative audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). These analyses were based on data from 136,880 admissions to 205 adult, general critical care units (CCU) based in NHS hospitals geographically spread across England, Wales and Northern Ireland. Unit costs were obtained from the National Schedule of Reference Costs 2012-2013. **RESULTS:** There were 22,081 admissions to CCU, with an average duration of 7.6 days. At a cost per day of £1044, this adds up to £175.2 million. There were 14,471 admissions to a post-unit discharge location (23.3 days, £240/day). Total ward cost is thus about £80.9 million. Renal and advanced respiratory support was required by 4,440 and 13,797 individuals, respectively (both cost £285/day). With an average duration of 5.4 days for renal and 7.7 days for respiratory support, the total costs amount to £6.8 million and £30.3 million, respectively. Therefore, the total cost of septic shock is estimated to be around £293.2 million. **CONCLUSIONS:** With annual costs of nearly £300 million, it is evident that septic shock patients pose a heavy burden to the national healthcare system. These patients require lengthy hospital stays, as well as substantial renal and respiratory support. Adding drug costs, societal costs, as well as Scottish data, would increase the total costs even further. Septic shock is a costly disease and every effort should be made to reduce this burden to the patients, hospitals and society.

PHP91

DISINVESTING IN LOW-VALUE CARE: OPPORTUNITIES AND CHALLENGES

Chambers J[1], Salem M[2], Neumann PJ[2]
[1]*Tufts Medical Center, Boston, MA, USA,* [2]*Center for the Evaluation of Value and Risk in Health, Institute for Clinical Research and Health Policy Studies,Tufts Medical Center, Boston, MA, USA*

OBJECTIVES: The role of 'disinvestment' in health care, i.e., the withdrawal (partially or completely) of interventions that provide no or marginal benefit compared to alternative therapeutic approaches is attracting worldwide attention. The objective of this study was to identify and review empirical evaluations of disinvestment programs to gauge their success and determine key challenges. **METHODS:** We systematically searched the medical literature using the PubMed database for empirical evaluations of disinvestment programs using the following search terms; "disinvestment", "resource allocation", "low value", and "priority setting". We did not restrict our search in regards to study publication year. Two researchers assessed each identified abstract. For each study, we reported the disinvestment program that was assessed and categorized study findings as 'successful' if a reduction in utilization of the low-value service was reported, and 'unsuccessful' if no reduction in utilization was reported. We also reported challenges identified by the study authors in the implementation of the disinvestment program. **RESULTS:** We identified 34 studies describing empirical evaluations of disinvestment programs. Fifteen pertained to the National Institute for Health and Care Excellence's recommendations, and/or their 'do not do list,' 8 pertained to the Choosing Wisely Campaign, and 11 pertained to unique initiatives worldwide—including the French initiative to delist unnecessary pharmaceuticals with the help of its Transparency Commission. The empirical evaluations varied with respect to the reported success of the disinvestment programs: twenty-one determined the program to be successful, and 13 unsuccessful. Common challenges reported by study authors include difficulty in identifying low-value care for disinvestment and gaining support among stakeholders. **CONCLUSIONS:** Empirical evaluation of disinvestment programs is limited. Available evaluations report varied success for existing disinvestment strategies and noted that a number of key challenges are yet to be overcome.

PHP92

ECONOMIC MODELLING STUDIES PUBLISHED IN 2014: WHICH DISEASE AREAS HAVE BEEN THE MAIN FOCUS OF CLINICAL RESEARCH?

Martin A
Crystallise Ltd., London, UK

OBJECTIVES: To determine the disease focus of all economic evaluation papers indexed in the PubMed database that were published in 2014. **METHODS:** An evidence surveillance process was established based on a systematic search of PubMed, using key words relevant to economic modelling in healthcare or disease and limited to studies published in English, in humans, and with abstracts. The surveillance incorporated all studies published from 2010 and was updated weekly. Abstracts identified by the search of economic evaluation studies were indexed according to disease area, using the chapter categorisation from ICD-10 as a framework. Articles were also included if they analysed the cost-effectiveness of healthcare service design or explored methodological issues related to economic modelling. To account for the delay in indexing of publications, we included all studies with a publication date of 2014 that were indexed in PubMed up to 8 June 2015. **RESULTS:** The search identified 2,772 articles published in 2014. Of these, 836 met the inclusion criteria and were subcategorised according to topic. The greatest number, 19%, were conducted in patients with infectious diseases, with 14% in cancer, 12% in cardiovascular disease, 8% in musculoskeletal disorders, 7% in mental health disorders, 6% in endocrine or metabolic disorders and 4% in digestive disorders. A further 7% of identified papers reported on modelling methods and 3% on service design. All other disease areas accounted for 3% or fewer of the relevant publications per ICD-10 chapter. **CONCLUSIONS:** The focus of economic evaluations in 2014 was on infectious diseases, followed by cancer and cardiovascular disease. As these three disease areas accounted for almost 60% of global mortality in 2012, and cause considerable morbidity, it is encouraging to see that health economic research has prioritised finding the most cost-effective ways to reduce this burden.

PHP93

USE OF BUDGET IMPACT ANALYSIS (BIA) IN ECONOMIC EVALUATIONS OF DRUGS AND MEDICAL DEVICES SUBMITTED TO THE FRENCH NATIONAL AUTHORITY FOR HEALTH (HAS)

Ghabri S[1], Autin E[1], Hamers FF[1], Rumeau-Pichon C[1], Josselin J[2]
[1]*Haute Autorité de Santé (HAS), Saint-Denis La Plaine, France,* [2]*Université de Rennes 1, Rennes, France*

OBJECTIVES: Since October 2013 HAS is required to provide the inter-ministerial pricing committee (CEPS) with an economic evaluation on innovative drugs and medical devices likely to have a significant impact on national health insurance expenditure. HAS' evaluation involves a critical appraisal of cost-effectiveness analyses (CEA) submitted by manufacturers. Although budget impact analysis (BIA) is currently not required by HAS, it may be provided as an optional complement to CEA. Our objective was to assess how BIA was undertaken in manufacturers' submissions. **METHODS:** We used a qualitative approach to assess manufacturers' submissions by end of April 2015 (n=49). As currently there is no formal HAS guideline on BIA, we used the recommendations of the French Collège des économistes de la santé as well as ISPOR Task Force Principles on Good Practices for BIA as an analytical framework, including perspective, time horizon, discounting, size of eligible populations, current comparators, anticipated uptake of the new technology, and cost of treatments. **RESULTS:** Eleven (22%) submissions included a BIA along with the CEA. Compliance with ISPOR Task Force principles was generally fair for perspective, time horizon and discounting. The selection of current comparators was considered problematic in 7 (64%) of these submissions. Regarding costs of treatments, the majority of BIA failed to include adverse events as well as follow-up costs. In most cases, there was a lack of transparency on BIA modelling and eligible population size estimates. Furthermore, in 9 (80%) BIA, scenarios were not explored through adequate sensitivity analyses. **CONCLUSIONS:** Although based on a small number of submissions, our study identified concerns about population size estimates, comparators, identification of costs beyond treatment acquisition and administration, BIA interpretation and scenarios sensitivity analyses. This raises the need to include explicit recommendations on BIA in the next, updated version of the HAS guideline on economic evaluation.

PHP94

SICK-PAY EXPENDITURES IN HUNGARY ACCORDING TO MAJOR DISEASE GROUPS

Kovács G[1], Endrei D[2], Elmer D[2], Boncz I[2]
[1]*Széchenyi István University, Győr, Hungary,* [2]*University of Pécs, Pécs, Hungary*

OBJECTIVES: In our study we investigated how monetary payment of sick-pay from National Health Insurance Fund Administration changed in the analysed period according to groups of illnesses. **METHODS:** We used the data of National Health Insurance Fund Administration of Hungary and statistical reports of Nr. OSAP 1514, as well as data of Hungarian Central Statistical Office from the period between 2005-2013. At the determination of groups of illnesses we used the main diagnosis of ICD classification of diseases. We analysed the following indicators: the number or sick-pay cases as well as the number of days spent on sick leave with regards to groups of illnesses. **RESULTS:** After having analysed the data we can ascertain that mostly musculoskeletal illnesses can be named as reasons for adhering to sick-pay every year. (24-28% of all cases) The average time spent on sick-leave in these cases was 33-41 days. The inflammatory disease of the respiratory system was the second cause every year (17-20% of all cases). Resorting to sick-pay because of mental illnesses fell from 9 to 5%. The period of sick-leave continuously decreased from 2009. The shortest, on average 7-18 days of sick-pay was resorted to because of infectious diseases; due to the infectious disease of the respiratory system people were on sick-leave for 12-19 days on average. The period spent on sick-leave because of cancer diseases in the investigated years was 55-65 days. **CONCLUSIONS:** Significant decrease occurred in the case of days spent on sick-leave due to mental and nervous system diseases (2007: 50 days, 3013: 33 days) and inflammatory disease of the respiratory system (2005: 19 days, 2013: 12 days).

PHP95

COST-EFFECTIVENESS ANALYSES IN FRANCE, ENGLAND AND CANADA: COMPARATIVE ANALYSIS OF STRUCTURAL CHOICES, RESULTS AND PERSPECTIVES

Bregman C[1], Paubel P[2], Levy P[3], Doutriaux A[1], Gauthier A[1], Cognet M[1]